

Amendments to the Claims

Please amend claims 1 and 11-13 as indicated below:

1 1. (Currently amended) A method for measuring the position of an actuator, ~~which~~
2 ~~has a coil that moves relative to a core of a magnet~~, comprising the following steps:
3 generating an alternating-current (AC) signal ~~through the~~ and applying the AC signal
4 to a coil of the actuator, said coil being moveable relative to a magnet core of the actuator;
5 sensing current flow through the coil as a coil current signal;
6 generating a control signal as a function of the coil current signal and having a
7 frequency corresponding to a position of the coil relative to the core;
8 generating the AC signal with the same frequency as the control signal; and
9 as a function of the frequency of the control signal, generating an output position
10 signal indicating the position of the coil.

1 2. (Original) A method as in claim 1, further including the following steps:
2 generating a regulator output signal as a function of the difference between an input
3 position set-point signal and the output position signal; and
4 generating the control signal as a function of the difference between the regulator
5 output signal and the coil current signal.

1 3. (Original) A method as in claim 2, in which the step of generating the control
2 signal comprises applying hysteresis to the regulator output signal before forming the
3 difference between the regulator output signal and the coil current signal.

1 4. (Original) A method as in claim 1, further comprising the following steps:
2 measuring a temperature-induced change of resistivity of the coil;
3 calculating a temperature compensation factor; and
4 adjusting the control signal by the compensation factor.

1 5. (Original) A method as in claim 4, in which the step of measuring the
2 temperature-induced change comprises measuring the temperature of the coil.

1 6. (Original) A method as in claim 4, in which the following steps:
2 measuring the temperature-induced change comprises measuring an average
3 value of voltage over the coil and an average value of current through the coil; and
4 calculating the compensation factor as a predetermined function of the ratio
5 between the average value of voltage and the average value of current.

1 7. (Withdrawn) A method for measuring the position of an actuator, which has a
2 coil that moves relative to a core of a magnet, comprising the following steps:
3 controlling a force generated by the actuator by applying a DC driving voltage
4 signal to the coil;
5 superimposing a constant-amplitude, sinusoidal voltage signal on the DC driving
6 voltage signal;
7 measuring an alternating current (AC) coil signal through and an AC voltage
8 signal of the coil;
9 measuring a phase shift between the AC coil signal and the AC voltage signal;
10 and
11 calculating a position signal corresponding to a position of the coil relative to the
12 core as a predetermined function of the phase shift.

1 8. (Withdrawn) A method as in claim 7, further comprising the following steps:
2 measuring a temperature-induced change of resistivity of the coil;
3 calculating a temperature compensation factor; and
4 adjusting the control signal by the compensation factor.

1 9. (Withdrawn) A method as in claim 8, in which the step of measuring the
2 temperature-induced change comprises measuring the temperature of the coil.

1 10. (Withdrawn) A method as in claim 8, in which the following steps:
2 measuring the temperature-induced change comprises measuring an average
3 value of voltage over the coil and an average value of current through the coil; and
4 calculating the compensation factor as a predetermined function of the ratio
5 between the average value of voltage and the average value of current.

1 11. (Currently amended) An arrangement for measuring the position of a ~~voice-~~
2 coil an actuator, comprising:
3 a permanent magnet core;
4 a coil arranged as a voice coil to move relative to the core;
5 an oscillation circuit having, as a first input, an alternating-current (AC) signal
6 corresponding to an instantaneous current flowing through the moveable coil and
7 having, as an output, a measurement output signal that has a frequency corresponding
8 to the position of the coil relative to the core; and
9 a converter converting the frequency of the measurement output signal into a
10 position output signal indicating the corresponding to the position of the coil relative to
11 the core.

12. (Canceled)

13. (Canceled)

1 14. (Original) An arrangement as in claim 11, further comprising:
2 a regulator having, as a first input, a position set-point signal corresponding to a
3 desired position of the coil; as a second input, the position output signal; and, as an
4 output, a position difference signal;
5 a comparator having as a first input, the alternating-current (AC) signal; and, as
6 an output, the measurement output signal;
7 a hysteresis arrangement connected between the output of the regulator and a
8 second input of the comparator; and
9 a switching arrangement applying current of alternating polarity to the coil at a
10 frequency equal to the frequency of the measurement output signal.